288 Textile Factory at Tsingtao that a woman worker, Ho Chien-hsiu, developed her accelerated method of work which won her international recognition (at least among the Soviet nations) as a "labor heroine." A convalescent hospital and rest camp for "model laborers" has been established at the famous beach resort.

489 The port of Tsingtao, whose extensive rail spurlines connect the wharf with nearby warehouses, has a breakwater over 1,300 feet in length.

The Tientsin-P'u-k'ou Railway passes Tsinan, Tzu-yang , and Hsü-chou . Hsü-chou is in Kiangsu Province and has been the locale of many decisive battles in ancient and modern Chinese history. The Lunghai Railway links Hsü-chou with Lien-yün-kang on the coast. Lien-yün-kang, with a wharf of about 1,000 feet in length, is not an extensive port.

There is no north-to-south railway in Kiangsu Province, but the highway net is a complete one. The Grand Canal connects many eastern Kiangsu cities with Yang-chou ,
[317] formerly a noted resort. Besides luxury and comfort, Yang-chou also offers a large supply of salt produced in the lower Hwai River area.

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•361 In southeast Kiangsu the communication center is, of course, Shanghai. This city, the largest in the Far East, must rely on the

489 Huang-p'u River and a seven-mile railway to
• 361 benefit from its port of Wu-sung (Woosung) at the Yangtze (Whamgpoo) River estuary. Wu-sung faces Ch'ung-ming Island on the estuary, and the forts on Wu-sung shore defend the entrance to the Yangtze River. From Shanghai it is about 450 miles to Chi-lung (Keelung) on Formosa and about 460 miles to Nagasaki. Since the Communist occupation, the city of Shanghai has been undergoing a great deal of reorganization. Over one-hundred industrial concerns have been moved outside of the city as a sanitary measure. The northwest section of the city, downwind, is being developed into an industrial "city within a city."
[349] A gigantic structure, begun on May 4, 1954, is rising on the former Hatung Garden on the western side of central Shanghai and is to be named "the Great Hall of Chinese-Soviet Friendship." Topped by a 330-foot tower, it will be the highest point in Shanghai.

There are three main routes inland from Shanghai: the Shanghai-Nanking Railway, the Shanghai-Hangchow Railway, and the Yangtze River. Nanking is, at present, the provincial capital of Kiangsu. The city is encircled by a wall twenty-one miles long -- the longest of
[873] its kind in the world. The central section of this erstwhile national capital has been undergoing a face-lifting, and a cultural center is rapidly rising with Nanking University and Nanking Engineering College as its center. The

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numerous scenic attractions in and around Nanking are also being groomed.

The Shanghai-Hangchow Railway starts from Shanghai and goes southwest to reach Hangchow through Chia-hsing , a key communication center on the Yangtze River Delta. Hangchow is the capital of Chekiang Province and is located on the north side of the Ch'ien-t'ang River. The famed West Lake is west of the city. Chien-ch'iao, to the northeast, was formerly the home of a cadet center operated by the Nationalist Air Force. The Chekiang-Kiangsi Railway begins at Hangchow and links such cities in Chekiang as Chin-hua , where two tributaries to the Ch'ien-t'ang River meet, and Chiang-shan , which is the last stop before the railway enters Kiangsi Province. Hangchow is also connected by highway with many important cities in eastern Chekiang Province. One of these cities is Ningpo , a well-known commercial port. This city is the meeting place for two fairly navigable rivers and is, therefore, the terminal for steamer traffic on the sixteen-mile down-river stretch to the sea. The offshore Chou-shan (Chusan) island group also contributes business to Ningpo. There is a railway connecting Ningpo with Hangchow, but the condition of this railway is at present unknown. Another important city in eastern Chekiang is Shao-hsing . Nicknamed "Home of Bureaucrats," Shao-hsing is the birthplace of modern China's literary idol Lu Hsün, to whom a memorial hall in the city

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has been dedicated by the Communists. Also well-known throughout China is the wine produced in Shao-hsing. A coastal highway connects Shao-hsing with Wen-chou , located on the Ou River about twenty miles from the sea. Only wooden boats sail on this stretch of the Ou River, and the riverfront wharf facilities at Wen-chou need much improvement. Formerly a navigation lane was in use between Wen-chou and Chi-lung on Formosa.

There is no railway in Fukien Province, and the provincial capital, Foochow , must depend on the Min River and the highways to communicate with inland cities such as Chien-yang . There is a distance of about thirty miles between Foochow and the sea. The Min River is partially navigable for small woodem boats, but seagoing vessels must anchor at Lo-hsing-t'a [Pagoda Anchorage], about nine miles downriver from Foochow. An island (Nan-t'ai) in the middle of the river gives the city additional room for expansion, and it is connected with the city by two bridges. The Ma-wei Naval Yard, fifteen miles southeast of Foochow, used to build boats for the Nationalist Navy but was destroyed during the last war. Chien-yang is the transportation center of northeastern Fukien. Two tributaries to the Min River and three highways leading into Anhwei, Chekiang, and Kiangsi Provinces converge at Chien-yang. From Chien-yang a north-to-south main highway passes through many of the important cities of central Fukien and reaches Ch'ang-ting on the southwestern

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361 provincial border. In the early days of the Chinese Communist development, Ch'ang-ting was for a short time, used as a main base by the Red Army. The same highway runs south of Ch'ang-ting to Shang-hang, which, in the late 1920's, was also a Red Army base.

The Fukien Province coastal highway extends from Foochow southward to Amoy . . . The city of Amoy is located in the southwest corner of Amoy Island at the estuary of the Chiu-lung [Nine Dragons] River. The strait between Amoy and the Mainland is about three miles wide. To the southeast of Amoy is Ku-lang-yü (Kulangsu) and between the two there is an excellent protected harbor. Amoy has extensive highways connecting it with the cities on the mainland. Offshore, but within sight of Amoy, lies the island of Quemoy. It is a bleak rock cluster, whose only permanent inhabitants are a few fishermen. At the end of the Ming Dynasty (c. 1640), a Ming general occupied this island, resisting the Manchus, until he was forced to retreat to Formosa. Now, the occupation of Quemoy by the Nationalists is focusing the attention of the entire world upon this tiny island.

Along the Yangtze River in this region are several key cities such as An-ch'ing and Wu-hu . Wu-hu, located on the south bank of the Yangtze River, is the largest economic center of Anhwei Province. The Ch'ing-i River cuts the city into two parts. The Huai-nan

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361 Railway terminates at the point directly opposite the Yangtze River. As of early 1955, traffic had not yet been restored on the railway running south from Wu-hu which was destroyed during the war. An-ch'ing at one time was the provincial capital. The southern edge of the city overlooks the river, with a terrain suitable for river defense The railway going north from Wu-hu passes through Hofei , the capital of Anhwei Province. Hofei is a large rice market and is linked with Pang-pu to the north by the same railway. Pang-pu is also on the Tientsin--P'u-k'ou Railway and provides a market for the coal produced at the Huai-nan Mine to the southwest. Strategically, Pang-pu has always been mentioned with Hsü-chou to the north (in Kiangsu Province) because both are on the main route between North and South China.

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ONE
Introductory

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This is the study of an anomaly. A city of four million people grew up in the short space of a hundred years out of the traditional agrarian economy of China, before the building of a modern railway network, before the development of a single national market, and before other Chinese commercial cities of metropolitan size had appeared. The city of Shanghai, born out of Western commercial enterprise and organized in its economic life largely along Western lines, was in effect superimposed on a peasant civilization. On this agrarian base, it erected first a trade which reached to all parts of the globe, and subsequently a manufacturing complex which put it among the leading urban industrial centers of the world.

In both respects, Shanghai has been the center of a vortex of economic change spreading from the city to engulf the rest of China, a process which is still in its early stages. Toward the close of the first century since its opening to foreign trade in 1843, Shanghai accounted for half of China's foreign trade and half of its mechanized factories. The city's four million people formed one of the first five or six metropolitan groupings in the world, and Shanghai was well over twice the size of each of its nearest urban rivals in China, Peking and Tientsin.

The rise of other great cities has in the main depended on either or both of two factors: the concentration of the administrative functions of a large empire or political unit in a single pre-eminent center (Rome, London, Peking); and the concentration of trade from and manufacturing for a highly integrated and commercialized economy in an outstanding urban location (New York, Rotterdam, Osaka), based on the existence of low-cost volume carriers. Shanghai has never performed any administrative functions beyond its own metro-

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361 politan limits, and the Chinese economy on which its trade is based
177 remains far from integrated or commercialized, while railways are still perhaps China's most notable lack.

361 But Shanghai lies near the seaward face of the Yangtze delta,
439 where the extensive water routes of a great river system are gathered
177 into a knot, and where the coast of China extends farthest into the open sea. Goods which different local areas produced and for which foreign traders found overseas markets could thus move out for export through Shanghai, and foreign goods entering China in return could be distributed over a wide area from the city. Shanghai thereby became the commercial center for virtually all of the Yangtze basin, which includes the most populous and productive half of China. Not only did trade flow through the city, but Shanghai also became one of the world's leading financial centers. Its banks financed the Chinese government as well as the economic life of the city and of its commercial hinterland of half of China and all the Chinese ports. They controlled "at a very conservative estimate 90 per cent of the imports and exports between China and foreign countries."[1] As manufacturing developed in the city during the twentieth century, aided by the accumulation there of foreign and Chinese capital earned in trade, it was able to compete successfully with other manufacturing centers, despite the local absence of most industrial raw materials, because of the ease and cheapness of water transport for the materials of manufacturing brought from more distant places. Finally, Shanghai's four million people could be fed largely from rice produced in the fertile Yangtze delta.

361 Perhaps the most remarkable aspect of the city is simply its size.
162 Dense populations have long been associated with deltas, and in
177 southeast Asia nearly all of the notable population concentrations are on fertile deltaic soils where ample water is available for the irrigation of paddy rice. Each of the major deltas in southeast Asia also supports the largest or second largest city in its political unit (Hanoi, Saigon, Bankok, Rangoon, and Calcutta). But none of these cities approaches Shanghai in size; Calcutta, the largest, has a population of only about two and a half millions.

361 Two outstanding locational factors distinguish Shanghai from
439 other delta cities in the lower and lower-middle latitudes: its central

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position on the coast of east Asia, and the great extent of its trade hinterland. With a similar delta agrarian setting for all of these cities, Shanghai is nearly twice as large as any of them because the trade of half, and that half the richer one, of the most populous political unit in the world is funneled through the city by the pattern of inland waterways and sea routes which focuses on it. In the pre-industrial economy of China, water transport is by far the most important volume carrier. While China remained agrarian, the stimulation of its external trade by foreign commercial enterprise produced an interregional flow of goods which moved largely through Shanghai. This situation continued to implement the physical advantages of the city's location to make it the major point of contact between China and the West.

Modern Chinese banking and finance, manufacturing, and commercial organization (and the new class of Chinese associated with them and divorced from traditional China) all got their start there, are still largely concentrated there, and for the last hundred years have spread out from there as from the center of a whirlpool. Of the whole process of Westernization in China, only railways came relatively late to Shanghai, a logical exception in view of the abundance of good water transport. Otherwise the city rapidly became, within the first decade of its opening to foreign trade, a physical and economic replica of the nineteenth-century Europe which had built it, and in time of the twentieth-century America which was also a prominent contributor.

Shanghai and the pattern of its development during the past century have been modern China in microcosm. In the city China for the first time learned and absorbed the lessons of extraterritoriality, gun-boat diplomacy, foreign "concessions," and the aggressive spirit of nineteenth century Europe. There more than anywhere else the two civilizations came together: the rational, legal-minded, scientific, industrialized, efficient, expansionist West, and traditional, intuitive, humanist, agrarian, inefficient, seclusionist China. The sequel, and China's response, began primarily at Shanghai, and there modern China was born.

China's economic revolution, as fully as Chinese nationalism, struck its first modern roots beside the Whangpoo, and these two

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Concession," which was, like the originally British and later International Settlement, merely an area which by written agreement with the local Chinese authorities was set apart for the leasing and later for the purchase of land by French nationals. It was largely residential, and was governed by a Municipal Council in the same way and with the same powers as the International Settlement under the Shanghai Municipal Council. The population of both foreign settlements was overwhelmingly Chinese.*

One peripheral matter may be mentioned here in brief since it is a common difficulty in all great cities and since Shanghai's solution of it has been somewhat unusual. This is the problem of conveniently located space for suburban residential occupance. The development of large-scale manufacturing came relatively late in Shanghai, and was not a primary factor in the city's economy until about the first decade of the twentieth century. Most of the city's industrial area (map 3) has been occupied since that time, and while most of the Chinese industrial workers lived in the area of the factories (many of which were supplied with workers' dormitories on the premises), there was a growing need for conveniently located housing in residential suburbs for higher-income Chinese and foreigners engaged in the expanding economic activity of the city. A combination of circumstances had left such an area near to the city's commercial core only sparsely occupied until about the end of the first world war. This was the major part of the French Settlement, behind its narrow river frontage.

The last and largest addition to the French Settlement was made as late as 1914, and it covers substantially the area which had become residential by the 1920's. The French Settlement had not expanded earlier in this direction for a variety of reasons. In common with their practice in other colonial areas, the French had favored their own nationals in the granting and registering of title deeds to land in their Settlement. (Registry was managed through the French consul.) The choice sites went to French merchants, and most of the other foreigners took their business elsewhere, while the volume of French business alone was not sufficient to produce adequate grounds for territorial expansion. The French Settlement was further

* Wherever Shanghai is named here, it refers to the conurbation as a whole.

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handicapped in its commercial and industrial growth by the very small extent of its frontage on the Whangpoo, on which most of the city's traffic moves, and French access to this waterfront was impeded by the interposition of the old Chinese city, which remained under Chinese control and through which no adequate roads were ever built. Just as important a handicap was the lack of navigable creeks running through the Settlement, since these have remained basic transport arteries in the modern economy of the city and have been important in locating many of its functions. Siccawei Creek (map 3) runs along part of the Settlement's southern border, but leaves it well before it enters the Whangpoo, and it has attracted industry along its southern bank rather than in the French Settlement. Finally, the French area is on the south side of the city, away from the Yangtze and the major industrial development reaching downriver toward Woosung, and upstream from the part of the harbor where ocean ships can dock.

Thus with the new addition in 1914, a relatively unoccupied area, free from industrial nuisances, but near to the center of the city and under the protection of foreign law and administration, was available for residential occupance at about the time when the suburban problem became acute. In addition to providing agreeable space for upper-income housing, it increasingly served as the entertainment center for the city and as a home for Chinese political figures in temporary retirement or for wealthy Chinese criminals who profited from the laxness of the French authorities and the ambiguous legal status of the Settlement. "Frenchtown," as the foreign residents of Shanghai called it, was famous before the war as the home of every variety of legal and illegal entertainment enterprise, as well as of most of the wealthy foreigners and Chinese in Shanghai.

Population Figures

Caution is the rule in the use of any statistics pertaining to China, and Shanghai, despite its measure of foreign control, is not an exception. The overwhelming majority of the city's population has always been Chinese (graphs 1 and 2), and census figures compiled by both the National Government and the Shanghai Municipal Council are admittedly estimates. In addition to the inaccuracy of

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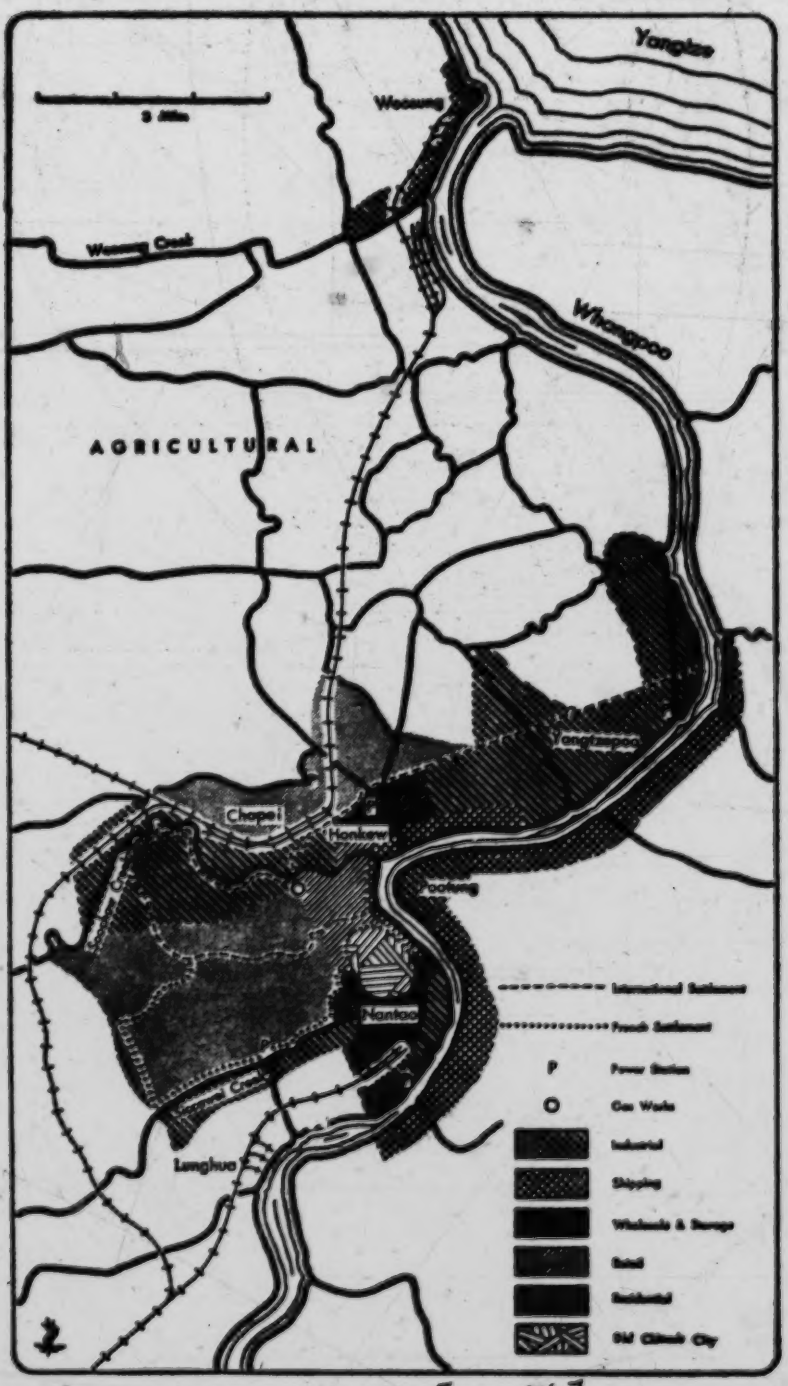

Map 3. Land Use at Shanghai, 1936 [p. 26]

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larly its major commercial artery, Nanking Road, which follows fairly closely the course of a small creek culverted early in the period of foreign occupance (map 6). It was thus one of the most frequently flooded areas in the city. Paving along this heavily traveled street through the heart of the hotel and retail district was removed for nearly a mile back from the river, and replaced after the ground level had been raised sufficiently to protect it from all but the worst floods.

The numerous tidal creeks (map 6), characteristic of the lower delta, were useful in the early days of the Settlements as master drains and for demarcating legally and defending militarily Settlement boundaries. They were also used for carrying off sewage, where their tidal ebb was an advantage, and for movement of goods within the city and to and from the hinterland. The so-called Defense Creek at the western limit of the British Settlement of 1848 (map 6) was culverted and covered with a roadway in 1906, a few years after the Settlement had reached its greatest areal extent in 1899, but the Yang Ching Pang, which formed the boundary between the French and International Settlements on the south, remained an open sewer and transport artery until 1915, when as an enclosed culvert it was covered over with a broad boulevard named Avenue Edward VII as a gesture of ideological if not political unity between France and Great Britain. The remaining uncovered creeks are still important transport arteries, and as such key factors in the economic life of the city. While Shanghai has at least to this extent turned its delta site to advantage (and in a largely unique way as we shall see below), the problems which the delta has presented far outweigh its benefits.

The City

The site of the original British Settlement, on the left bank of the Whangpoo at its confluence with Soochow Creek, was determined by the existing walled Chinese city just upstream, whose trade had attracted British interest in a concession there (map 6). Soochow Creek, the original natural and later canalized waterway to the leading delta city of Soochow for which Shanghai served as the port, was the primary factor fixing the Chinese city, and it was

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naturally built on the outside of the bend in the Whangpoo, where tidal scour cut a channel and where it could tap a larger hinterland than on the inside of the bend. It may be assumed that the Chinese city was originally at the junction of Soochow Creek and the Whangpoo, and that since its founding in approximately the fourth century A.D., deposition and alterations in the character of both Creek and River (see the next section of this chapter) have left the city on the Whangpoo about 5000 feet upstream from the Creek's mouth. A considerable area was thus left between the city walls and the mouth of Soochow Creek, and here the British Settlement was established.

Sir Henry Pottinger, head of the British delegation at the Treaty of Nanking, selected the site for the British Settlement at Shanghai on his way back from signing the Treaty, his choice being influenced by strategic considerations.[8] The area he fixed on was the little square bounded on three sides by defensible waterways and on the fourth by the navigable Whangpoo (map 6). The main suburbs of the Chinese city lay between its wall and the Yang Ching Pang, while north of this creek the land-use was agricultural.

The boundaries of the original British leasehold of 1843 and later additions, and of the original French leasehold of 1849, made close use of existing waterways. These were useful not only for demarcation and defense, but also for sewage disposal, drainage, and transport, although not for drinking since they were both brackish and polluted. Roads (including Nanking Road) were built over many of these streams, but they continued to act as sewers. The course of Defense Creek and its junctions suggest that it was canalized for at least part of its length and diverted to supply the moat of the Chinese city, supplementing the water also received from the three other creeks emptying into the moat.

There are no contemporary accounts of natural levees anywhere on this site in 1843, and the possibility of their existence is lessened by the contemporary pattern of streams and canals as it can be reconstructed from period maps and records. Possibly the material which must have been deposited by Soochow Creek and Whangpoo flood waters along their respective banks was continually removed by local farmers in order to spread the alluvium over their fields

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133 361 (a common practice in the delta), or to maintain proper ground levels for the flooding of rice paddies. It is therefore unlikely that foreign settlement was fixed in any respect by the protection or by the higher and drier ground which natural levees would have afforded.

648 A frontage on the navigable Whangpoo, completing the water defenses around the British Settlement, was an additional source of security for the foreigners, since it permitted British naval vessels to command the entire site with their guns. George Balfour, the first British consul at Shanghai, in expressing his approval of Pottinger's choice of a site, stressed the importance of the Whangpoo on this point: "By our ships our power can be seen, and if necessary, felt."[9] This consideration may have been a factor in the decision to retain the prohibition against building on the river side of the Bund, a problem which is discussed in more detail below. Certainly foreign naval vessels have been prominently anchored off the Bund at every period of Shanghai's history from 1843 until the Communist take-over in 1949.

503 Along the Whangpoo and Soochow Creek, the muddy tidal foreshore was not usable for buildings or wharves until embankments had been constructed. This process, known in all the China treaty ports by the Anglo-Indian term "bunding," was a continuing job requiring large sums of money. In the case of the famous Bund along the Whangpoo frontage of the International Settlement from Soochow Creek to the Yang Ching Pang, the terms of the original grant of lease rights by the Chinese government to British subjects prohibited building within thirty feet of the high-water mark, which space was to be reserved as a tow path for the use of Chinese trackers pulling boats upstream.

503 367 When the rights of the Chinese trackers lapsed by the mid-1850's in the face of the growing foreign stake in Shanghai and the demands of steam navigation, the Shanghai Municipal Council inherited this waterfront strip by default and successfully defended it against the designs of foreign traders who wished to make commercial use of the area for warehouses and offices which would be convenient to the river.[10] The Council undertook the bunding of this strip in 1862, and in the process extended it beyond the high-water mark to

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again. As long as water transport retains its basic place in the Chinese economy, a harbor for ocean ships will be maintained at Shanghai as the commercial center of the Yangtze basin.

Relief and Climate

The site has only two advantages of importance: it is almost completely flat, and it has a more favorable climate than rival south China ports. Ample level ground was useful during the purely commercial phase of the city's development in allowing adequate space for storage of goods, for half of China's foreign trade passed through Shanghai from 1865 on, but it was more important in allowing the development of manufacturing after 1895. The commercial center which began in an area of 43 acres along the Whangpoo in 1843, demarcated and defended by creeks, was able to grow outward toward the west, south, and north as both political and economic conditions provided the impetus for metropolitan industrial development. Level ground continues unbroken within a twenty-mile radius of the city. While the site's liability to floods is a notable disadvantage, level ground must in general be counted an asset, especially as against the lack of it in Hong Kong, Foochow, Amoy, and other south China ports.

Shanghai's climate is influenced alternately by cold dry air from inner Asia and Siberia, and by warm moist Pacific air; it is tropical for one third of the year and temperate for two thirds. Rainfall averages 45 inches annually, 14 inches of which falls in June and July, but with no very marked seasonal concentration. July and August are uncomfortably tropical, and while rains keep the temperature below 90° for at least a quarter of these two months, the relative humidity throughout this period averages 84 per cent. Temperatures rarely exceed 98°. Vital statistics for foreign residents of the China treaty ports included in the yearly medical reports published since 1870 by the Maritime Customs give Shanghai, with a death rate averaging 16 per thousand annually for the period 1870–1930, a relatively good record. Most of the foreign residents considered it among the healthier treaty ports despite its uncomfortable summer, during which as many of them as were able left the city for the central mountain belt or the Shantung beaches. The accompanying table com-

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132 pares temperatures and relative humidity at Shanghai with selected cities in different climatic regions.

	Mean Annual Temperature	Mean Annual Rel. Humidity	Dec.-Jan.-Feb.		June-July-August	
			Temp.	R.H.	Temp.	R.H.
New York	54	60	30	61	79	62
London	49	79	39	82	61	76
Canton	64	82	48	56	83	89
Shanghai	59	78	39	36	78	85

Shanghai's is a moderate climate compared with south China, especially in respect of the greater effect in winter of the Siberian high, and with daily and seasonal changes in which Chinese and foreigners can work under reasonably favorable and familiar conditions.

361 In sum however, the growth of Shanghai must be regarded as an illustration of the extent to which the advantages of an exceptionally favorable location can overcome the disadvantages of an exceptionally unfavorable site. While most of the city's site problems are common to many delta ports, its locational advantages are unique. These will now be examined in the following chapter.

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FOUR

Location

Shanghai's Hinterland

"The first and most natural root of a great city is the labour and populousness of the adjacent country, which supplies the materials of subsistence, of manufactures, and of foreign trade."[1] Shanghai is a great city primarily because it stands at the apex of the most fertile and populous area of comparable size anywhere in the world, the lower Yangtze basin.

The Yangtze watershed totals 750,000,000 square miles, or half of China proper, and has a population of approximately 200,000,000. The section of the river's basin which we may call the fertile triangle, bounded by Chinkiang, Hangchow, and Shanghai, an area of about 20,000,000 square miles, has an estimated population of 40,000,000, or an overall average of about 2,000 inhabitants per square mile. Nearly 80 per cent of the total land area is cultivated (map 10), and this region stands out as one of the three most widely cultivated in China (the Red Basin of Szechuan and the north China plain being the other two). Nodes of commerce are thickly scattered over the fertile triangle, which contains three cities of over half a million population (Hangchow, Soochow, and Shanghai — map 5). The Yangtze delta supports by far the densest single concentration of population in China for an area of similar size (map 7). The river's course is marked by successive clusters of settlement, terminating westward in the densely peopled Red Basin of Szechuan.

Of the other major cities of the lower Yangtze basin, Hangchow, Soochow, and Nanking were all at one time imperial capitals, and all have remained important commercial and industrial centers. Hangchow and Soochow are still among the three or four leading cities in China in silk reeling and weaving, and both act as central places for the surrounding rice and silk areas of the delta. Nanking

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Nanking is above the delta proper, and its water connections are limited compared with those of its delta rivals. It has profited primarily from its location at a break in transport routes (including China's major north-south railway, which breaks at the Yangtze — map 8), and from its periodic function as a political capital.

All three cities have been hampered in their modern development by the lack of harbors adequate for ocean ships. At Hangchow an impressive tidal bore and many shoals in Hangchow Bay preclude use of the Chientang estuary by ocean shipping, and the river itself is navigable only for small boats. Soochow, once a maritime trading center, is now effectively land-locked, and was in any case superseded as a port city by Shanghai by at least the eighteenth century A.D. Nanking, 210 miles from the sea, must contend with silting, river currents, and an exposed anchorage. Both Nanking and Hangchow are handicapped as commercial centers, especially in a region where most goods move by water, by the rugged country around them (map 5), which contrasts with the extensive lowland focused on Shanghai. While all three of these cities were larger than Shanghai before the opening of China to foreign trade and to Western commercial exploitation, they were quickly outstripped by Shanghai under the new economic conditions, where access by water to the entire Yangtze basin and to the major ocean lanes of world commerce gave it a decisive advantage.

The city lies topographically at the focus of the east China lowland, converging on it from both the west and the north, and of the Yangtze basin as a whole (map 2). The river and its tributaries, draining the productive heart of China, all feed ultimately to the mouth of the Whangpoo. In the mainly pre-industrial economy of China, the great majority of goods moving beyond purely local markets do so by water. No other location can marshall a fraction of the advantages of Shanghai on this crucial point.

Of China's two other major river systems, the Huang (Yellow) in the north is navigable for steam launches for 25 miles above its mouth and for a small part of its course through Honan, but it is otherwise useless for navigation except in short stretches by small boats. The Hsi (West) River in the south is navigable for some 230 miles in the high-water season (spring and summer) for vessels

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settlement or holding property, and certainly areal concessions were not in the mind of either of the parties. The right to lease land was left to be negotiated in each case through the local officials at the treaty ports, a reflection of Peking's lack of interest in relations with the foreigners. Article XI of the Treaty of Tientsin in 1858 legalized this practice, already developed in the treaty-ports "including the right of residence, of buying or renting houses, of leasing land, and of building churches and cemeteries." [9] On this flimsy legal basis, the political and economic structure of foreign Shanghai was erected.

Trade had escaped from its traditional Chinese cage at Canton, and was able at Shanghai to develop on a Western pattern by Western rules instead of being regulated at every point by semi-official Chinese merchants. The Treaty of Nanking between China and Great Britain was followed in 1843 by the Treaty of Wang Hsia between China and the United States, which extended trade and residence rights in the treaty ports to United States citizens and which also stated explicitly for the first time the condition of extraterritoriality. Similar treaties were negotiated by France and Russia in 1844 and 1858 respectively.

The Settlements at Shanghai

George Balfour, the first British consul at Shanghai, arrived November 8, 1843, and declared the port open to foreign trade on November 14. His primary job was arranging for the leasing of land to foreign traders. His original agreement with the taotai in 1843 provided for an area of about 43 acres within the site selected by Pottinger where foreigners might lease land in perpetuity, since the Chinese at that time refused to sell. The western boundary of this area was extended by similar agreement in 1845 to include a total of about 180 acres, and in 1849 the boundary was moved farther west to Defense Creek, bringing the area of the British Settlement to 470 acres (map 6). The maps attached to each of these agreements were lost when the Chinese city was taken by rebel forces in 1853 and when the British Consulate burned in 1870, and the boundaries of the Settlement were not demarcated at all until 1889.

Foreign merchants who leased land within this Settlement had to agree by contract to allow the former Chinese owners to visit their

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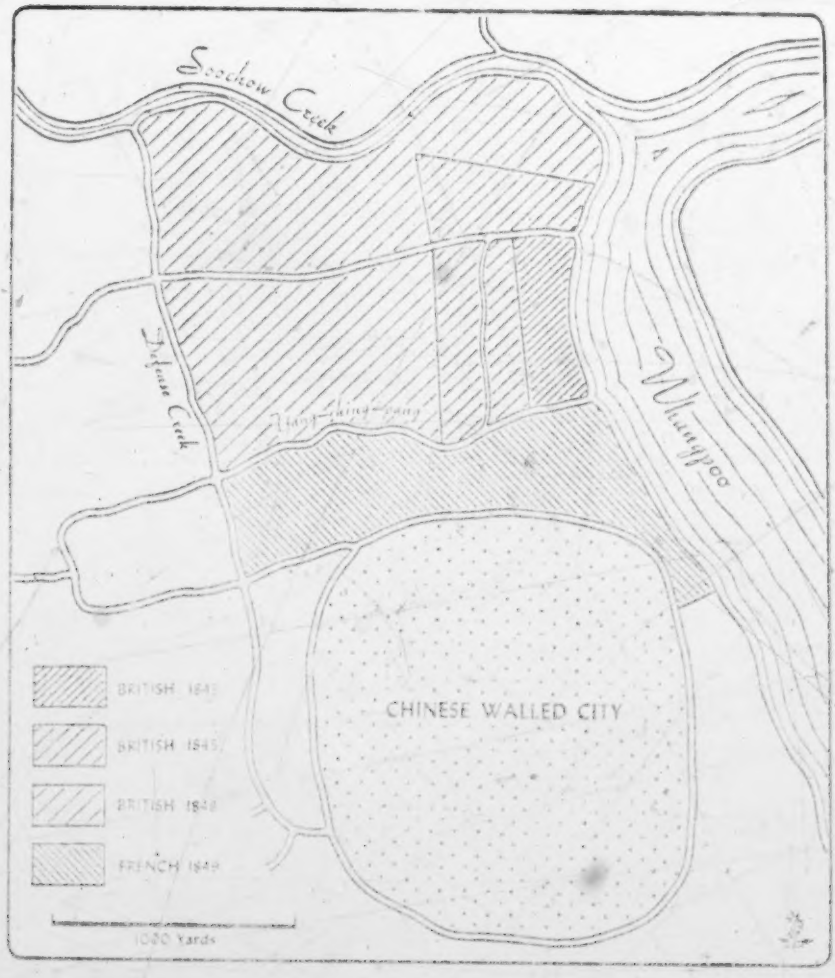

Map 6. Early foreign settlements at Shanghai

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ancestral graves at will. During the first months after November 1843, many of the Chinese owners refused to vacate houses and land already leased to foreigners and had to be paid a fee or were forcibly ejected. The numerous disputes over the property rights of foreigners resulted in the Land Regulations of 1845 negotiated between Balfour and the taotai which, *inter alia*, forbade Chinese residence within the Settlement and made foreigners responsible for its upkeep and policing from their own funds. These were raised by a committee of foreign merchants, appointed by the British consul, which assessed each foreign landrenter and controlled community expenditures.

An American Settlement in Honkew, never defined or legally established, amalgamated with the International Settlement in 1863. The French merchants, however, proceeded independently and negotiated with the taotai their own set of Land Regulations, issued in 1849, for an area set apart for French leasing immediately south of the International Settlement, between the Yang Ching Pang and the city wall. This Settlement, and its later extension, inaccurately titled the French "Concession," remained under separate French administration until the rendition of all foreign rights.[10]

While the position of the foreigners at Shanghai fell far short of actual sovereignty, it was a long step from their confined position at Canton. Travel into the surrounding country was permitted on condition that the travelers return to Shanghai the same day, and there was no requirement for the foreigners to leave at the end of the trading season as formerly at Canton. Most important, however, was the escape from the Canton Cohong. Foreign traders were now free to deal with any Chinese merchant they wished, and could employ their own Chinese agents for buying and selling in the hinterland, a significant advantage which the foreign firms soon put to use. Business could be conducted without the semi-official supervision of the Cohong and its function as the watchful eye of Peking in all dealings with the foreigners.

This monopoly, so useful both economically and diplomatically, died hard. In Canton, the Cohong continued in effect in disguised form by the simple device of preventing the appearance of other Chinese firms in the market. All trading with the hinterland was managed through the Cohong firms as before, and foreigners could

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in Shanghai, and visited it again late in 1848, this time under commission from the British East India Company to introduce the tea shrub into India. (He also made two later trips to the Yangtze basin, in 1853–1856 and 1861–62.) He was as much taken with the natural advantages of the place as Lindsay had been, and provided a neat and prophetic summary of the factors which have been responsible for Shanghai's growth:

> No other town with which I am acquainted possesses such advantages. It is the great gate to the Chinese empire and a place of vast native trade . . . The convenience of inland transit is unrivalled in any part of the world. The country is one vast plain intersected by many rivers, and these again joined and crisscrossed by canals, many of them nearly natural and others stupendous works of art. The port of Shanghai swarms with boats of all sizes employed in the inland traffic. Since the port has been opened these boats bring down large quantities of tea and silk and return loaded with the manufactures of Europe and America which they have taken in exchange. From what we know of the geographic nature of the country there can be no doubt that all the green teas and most of the black can be brought to Shanghai at less expense than they can be taken to Canton or any of the southern towns. The large silk districts of central China are also close at hand. The proximity of Shanghai to the large towns of Hangchow, Soochow, and Nanking forms a further advantage. Lastly, viewing this place as an immense mart for our cotton manufactures, which we already know it to be, there can be no doubt that in a few years it will not only rival Canton but become a place of far greater importance.[18]

Fortune however estimated the population of Shanghai in 1843 as only 270,000, while he gave figures of one million for Hangchow and about 500,000 for Soochow, Nanking, and Ningpo. He credited six other delta cities with populations equal to Shanghai's (Sungchiang, Chiating, Changshu, Kashing, Huchow, and Wusih — map 5).

Chinese Shanghai had risen as the port of Soochow, from a small fishing village at the junction of Soochow Creek and the Whangpoo. When silting, and presumably advance of the coastline, made maritime access to Soochow impossible by the eleventh century A.D. despite the canalizing of the Creek's lower course in

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A.D. 446, ships began to dock at Shanghai, or Hu Tu as it was then called and in 1075 an official was stationed there to administer the customs. In 1279 the town, now called Shanghai (which may be translated as meaning "up from the sea") declared itself independent of Soochow and sent its taxes direct to Peking. It was however still too small in the thirteenth century to be mentioned by Marco Polo, who gave a detailed account of all cities of importance in south coastal China. The city walls were built in 1544 following the sacking and burning of the city in the preceding year by Japanese pirates.[19]

By the beginning of the nineteenth century, Shanghai was the principal port of the Yangtze basin, and was also the center of the coastal trade between north and south China. Southern junks were not permitted to trade north of Shanghai, and vice versa. (This official regulation may have been influenced by the difference in the nature of the coast north and south of the city.) In 1812 the official gazetteer of Shanghai estimated the population of the *hsien* (county), which included an area of about 400 square miles, at 528,000.* Despite its commercial prominence, it did not seriously rival the older delta cities in size because they were in varying degrees administrative centers, a function which Shanghai has always lacked beyond its own metropolitan limits. They were as well or better situated for domestic or regional trade, but administration more than commerce was the consistent basis of urban existence and growth in the bureaucratic framework of traditional China.

Shanghai before 1843 had grown primarily on the trade of its immediate delta hinterland: tea, silk, cotton, and rice, and on its key position in the coasting trade which enabled it to act as an entrepôt and to distribute goods received by sea within the densely populated delta. But the wider water network, both sea and river, of which it stands at the focus was not fully exploited. It remained for foreign traders and foreign economic organization, implemented by the steamship, to realize the geographic potential of Shanghai's location.

* Ch'ing dynasty population figures of this period are, however, suspect, partly because of the practice of padding the census in order to impress the emperor with the prosperity resulting from his reign.

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442 439 to keep healthy in China, and nearly every foreigner in Shanghai rode, hiked, or took part in team sports.

The Chinese were amazed at this waste of calories. "'Belong foreign man custom' they would say as they turned to their diet of rice and cabbages," according to the memoirs of an early foreign resident.[22] Certainly the foreigners ate well, but while they brought spirits and special foods from home at great expense, the bulk of their food came from the delta area, according to the records of the same early resident, who was for a time during the 1870's in charge of the mess at one of the foreign firms and lists the sources and prices of the most important items which supplied it.[23] Foreign merchants and assistants would often be gone for weeks at a time on shooting excursions in the hinterland. Wherever they wanted to go in the delta area they found they could travel by houseboat, to the smallest village or the most remote bird-feeding grounds. And wherever they went they found these waterways clogged with Chinese craft carrying both domestic and foreign goods to and from Shanghai.[24]

503 W. H. Medhurst, an early British missionary (and later consul) at Shanghai, took a trip into the tea and silk districts of Kiangsu, Chekiang, Anhwei, and Kiangsi in 1845, disguised as a Chinese. His account of the trip laid emphasis on the waterways of this region, and since his journey never took him far from the waterways of the delta or of the Yangtze system, he attributed what he saw over this large area to the whole of China:

> Canals have been dug in all directions, and spread like veins and arteries to almost every part of the empire. As far as the experience of this writer goes, the Chinese have no walled cities or large towns except in places which are accessible by water.[25]

[491] He noted that the major canals, used by grain junks, averaged about 40 feet wide and 6 to 8 feet deep, and that bridges over them were at least 20 feet above the surface of the water at the center of the arch so that the grain junks could pass under them with their masts lowered.

361 By 1863, the original foreign leasehold at Shanghai of 43 acres had been expanded through agreements with the taotai to a total of

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2094 acres (including the French Settlement), and Shanghai was indisputably the leading port and commercial city of China.

Struggles with the Harbor

The problem of an adequate harbor, however, was a matter of increasing concern to the foreign community through the latter half of the nineteenth century, if not to the Chinese authorities. It was openly stated by the ranking Chinese government official at Shanghai in 1874 that Woosung Outer Bar was in fact a "heaven-sent barrier intended to prevent war vessels of heavy draught . . . from entering the harbour."[26] But foreign residents realized with alarm that the city could not hope to remain an ocean port if the silting process were allowed to continue, and they had yearly evidence of the speed with which the Yangtze was extending its delta. Blonde Shoal, near the mouth of the Whangpoo, was covered with ten feet of water at low tide in 1850, and by 1890 rose three feet above mean low water. The history of Tsungming Island, already referred to above, was well known, as well as the fact that the site of Shanghai had originally been on the seacoast and that it was rapidly being cut off from access to the sea.

A local resident writing in 1894 estimated that silt deposition in the Yangtze estuary would lessen the depth of the water about one foot in every eight years if spread evenly, and that while tides and currents provided some scour in certain channels, these too were filling up, although at a slower rate. The same writer, however, pointed a lesson later acted on by the Whangpoo Conservancy Board after 1905 by calling attention to the fact that when a small coasting vessel had been rammed and sunk in mid-stream just above Woosung Outer Bar in 1892, the Whangpoo current had apparently been diverted and concentrated sufficiently to scour a new and deeper channel through the bar.[27]

Shanghai's environmental dilemma was intensified by the progress of steam navigation in the latter half of the nineteenth century. The most economical ocean carriers were increasingly those of larger draught, and by 1885 or 1890, most of these new steam freighters could reach Shanghai only with difficulty or not at all. Shipping lists published in the *North China Herald* at Shanghai

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TEN

The Geography of Shanghai Manufacturing

Shanghai is not only the primary industrial center of China proper, but has a virtual monopoly of large-scale manufacturing enterprises in nearly every field. Two factors are principally responsible for this concentration. First, Shanghai and its trading area represent by far the largest market in China; and second, despite the local absence of most industrial raw materials, cheap transportation makes it possible for Shanghai industry to produce competitively.

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Evaluation of Data

More statistical work has been done on Shanghai manufacturing than on almost any other economic problem in China. It is therefore perhaps a commentary on statistical work in China that what has been done on Shanghai falls so short of reliability as measured by any criteria. A further difficulty is that no large-scale work has been published on the problem since 1936; this limits the use of statistics here almost entirely to the pre-war period. The standard study of Liu Ta-chün (1936) draws on the findings of six different surveys made during the late 1920's and early 1930's by the municipal governments of both the foreign and Chinese settlements and by private groups. The combined data of these six surveys do not cover more than two-thirds of Shanghai manufacturing, by workers or by industries. Where two or more surveys cover the same material, their data are almost invariably contradictory. In most of the surveys, and in Liu's compilation, totals are wrongly added, figures misplaced, columns transposed, and statistical paradoxes abound.

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365 Rates during the period 1926–30 averaged for all users the equivalent of US$.008 (.025 taels) per kilowatt-hour, which the president of the Shanghai Power Company claimed made his product the world's cheapest power.[59] These rates were made possible, in spite of the higher price of domestic coal in Shanghai than in Tientsin, by the very high and constant annual 24-hour load factor, which averaged nearly 70 per cent during the period 1930 to 1936, as compared with 42, 26, and 40 per cent respectively for Manchester, Birmingham, and Liverpool during the same period.[60]

365 466 The load factor reflects a high intensity of industrial operation, and a heavy dependence of Shanghai manufacturing on electric power purchased from the power companies. It also reflects the long working hours of nearly all manufacturing establishments in Shanghai, which averaged between 11 and 12 hours a day six days a week,[61] and the widespread Sunday and night-time operation among nearly all of the household and smaller-scale manufacturing establishments using electric power. The low power rates encouraged the spread of small-scale mechanized manufacturing in private houses, and more important, made Shanghai an attractive location for almost every form of manufacturing.

365 The case of electric power demonstrates again the role of the Shanghai market in locating industry there. While coal was relatively easily and cheaply obtainable in Shanghai, it was even cheaper in Tientsin, yet rates for electric power produced from coal in Shanghai were among the lowest in the world. The availability of cheap power must be counted one of the outstanding advantages of Shanghai for manufacturing. Power was cheap because water transport made a flexible and reasonably priced coal supply possible at all times short of war in the Pacific, and because the volume of industry already attracted to the Shanghai market by its transport connections, and dependent on rented electric power, made for a load factor which kept power rates exceedingly low.

Factory Location

361 As if to demonstrate a basic reason for its presence there, manufacturing within Shanghai is closely oriented to waterways, as map 3 will illustrate. Manufacturing came relatively late in the

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development of modern Shanghai, and has always been subordinate to the city's trading function. It has tended to occupy the urban margins and has not notably displaced older land-use patterns in the city. In a Western city this might give manufacturing an advantage of easy railway connections. Shanghai has at least part of a belt line, connecting the Hangchow, Nanking, and Woosung tracks, in addition to conveniently placed yards, but the railway lines touch important manufacturing areas only along Soochow Creek (the riverside industrial developments at Nantao and Woosung are relatively minor and are in both cases more closely related to the Whangpoo and its tributary creeks than to the railway). It is a surprising fact (by Western standards) that while manufacturing has spread toward the Yangtze along the left bank of the Whangpoo for about half the distance between Soochow Creek and Woosung, there is no manufacturing along the railway to Woosung from the station in Chapei (which is itself flanked on two sides by a residential area) to Woosung Creek. The greater part of this spur line passes through purely agricultural country.

The Yangtzepoo manufacturing area, the largest in the city and on the left bank of the Whangpoo, is nowhere nearer to the railway than one mile, and most of it is between two and three miles away. The manufacturing zone along Soochow Creek is mainly on the opposite bank from the railway and does not follow it when the lines leave the creek. The residential district of the French Settlement is also flanked on the south side by an industrial sector, articulated with Siccawei Creek and divorced from the railway. Manufacturing is absent from the left bank of the Whangpoo only along the well-guarded frontage of the Bund (see above, Chapter Three) and immediately downstream where wharves and docks have primary claim. Even Pootung, devoid of railway connections, but jutting into the Whangpoo in peninsular form, is an industrial area.

Power plants in any city must be located on or near large supplies of fresh water in order to cool their condensers. But of the five power plants in Shanghai, none has a direct rail connection, and all but two are considerable distances from the railway. The gas works, not heavily dependent on water for cooling purposes, but, like the

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361 power plants, a large consumer of coal, is on Soochow Creek, on the opposite bank from the railway.

Cotton textiles and flour, Shanghai's two leading industries by value of output, illustrate in the location of their manufacturing plants what is surely a unique economic phenomenon among modern industrial metropolises. Virtually all the city's cotton and flour mills are located on or near the navigable creeks by which they receive their supplies of raw cotton or wheat and send out their finished goods. The great majority of these mills had no other transport facilities, not being connected with either roads or railways.[62] Shanghai, for all its superficially Western appearance, is economically a blend in which Venetian characteristics are as discernible as British or American to the enquiring eye.

Changes in Industrial Location

Any city and any industrial center, once it reaches metropolitan size, tends to develop a seemingly automatic power of attraction for economic enterprises of all kinds. In particular once it has become a primate city, it seems to grow in snowball fashion and to corner for itself continually the lion's share of any new economic activity of the political or economic unit as a whole. This primacy in the case of Shanghai was undoubtedly in large part responsible for the continuing concentration there of trade, manufacturing, and finance. The more economic activity the city supported, in variety and volume, the more advantageous it became for new economic activity of any kind to center there.

361 348 By 1936, there were, however, signs that some new manufacturing was locating elsewhere more than in Shanghai, and even that certain industries were moving from Shanghai to other industrial centers. The cotton textile industries of China were increasingly dependent on domestic cotton through the early 1930's (see above, p. 172). This removed some of the double advantage of Shanghai's location in the major domestic cotton producing area, and near the main shipping lanes, where it could easily import long-staple foreign cotton. The growing of long-staple cotton in China from American seeds was first begun on a large scale in Shensi in the early 1930's, but it was still cheaper for Shanghai to buy its long-

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staple supplies from overseas. Tientsin, Hankow, and to a lesser extent Tsingtao, could, however, use this improved Shensi cotton, and by the early 1930's, although the production of long-staple cotton had spread into all the cotton-growing provinces, more of it was grown in Hopeh and Shantung than in Kiangsu.[63]

A further factor was China's recovery of tariff autonomy in 1929. Up to that time, the tariff on most imported and exported goods was fixed by successive treaties between China and the major Western powers (beginning with the supplement to the Treaty of Nanking in 1843) at 5 per cent *ad valorem*. In practice the rates had varied between 3 and 10 per cent, but the average between 1843 and 1929 had been close to 5 per cent.[64] The new tariff of 1929 promulgated by the Nationalist Government in that year and revised in 1931, 1934, and 1935 imposed duties on the import of raw cotton and cotton yarn which varied considerably but which averaged about 17 per cent *ad valorem* between 1929 and 1935.[65] While Shanghai normally drew about 20 per cent of its raw cotton from abroad, Tsingtao, Tientsin, and Hankow respectively drew 93, 95, and 98 per cent of their raw cotton supply from domestic sources by 1930.[66] The average price of raw cotton in Shanghai by 1935 was about 10 per cent higher than in these three other centers, and nearly 90 per cent of the new building in the cotton textile industry in that year was elsewhere than Shanghai, although Shanghai still contained 51 per cent of the cotton spindles in China in 1936, and although total production costs for cotton spinning were still about 10 per cent lower in Shanghai than in any other Chinese city.[67]

This may prove to have been only a temporary disadvantage, since in the face of higher duties on imported raw cotton after 1929, and currently of China's desperate attempts to become independent of foreign imports, steps have been taken to increase the production of long-staple cotton, especially in Kiangsu where Shanghai manufacturing is so heavily dependent on it. The work of the Cotton Industry Commission of the National Resources Commission during the 1930's indicates that the goal of complete self-sufficiency in all types of cotton was realizable within five or ten years, under an effective administration.[68] Recent reports from China suggest that domestic cotton production, while still inadequate to supply Shang-

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hai's textile factories, is now again approaching a self-sufficient level.[69]

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Until 1927, the silk-reeling industry had been larger, by value of output, in Hangchow and in Wusih (where it was more closely oriented to the major silk-producing areas) than in Shanghai. With the stimulus of civil war in the delta in 1926, many of these mills moved to Shanghai, where they could get cheaper coal and electric power, abundant capital, and the general commercial advantages of a large market, as well as being able to draw their raw silk from the producing areas by water transport at nearly the same cost as in Hangchow or Wusih. By 1936, however, Wusih again led Shanghai in silk-reeling, due apparently to lower labor costs in Wusih, local skill, newer and hence more efficient plants, and the drop in the Wusih price of coal brought from Shanghai by barge trains pulled by steam tugs.[70]

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A major and continuing development of the 1930's was the large Japanese investment in Manchurian heavy industry, notably in the Mukden area. Following the Japanese conquest of north China in 1937–38, this development was extended to include the Peking-Tientsin area, although on a much smaller scale. While these were primarily strategic or military rather than economic investments, they laid the foundation for a new heavy manufacturing center, closely oriented to its sources of bulk raw materials, and confined to the north. In addition to the logical association with coal and iron deposits, this project was geographically an obvious one for Japan to undertake from her original Korean and Manchurian base, and it did not include Shanghai, especially after the widening of the war from 1941 on made seaborne imports of raw materials into Shanghai increasingly difficult.

Japanese war-dictated industrial investments have now however become a legacy of great value for China, and heavy manufacturing is still virtually restricted to the north. In time, a second manufacturing center of this type may develop at Shanghai, dependent on cheap transportation for the assembling of bulk raw materials and shipping of finished products, cheap electric power, skilled labor, and continued market attractions. But in the current acute capital shortage in China, which is unlikely to be alleviated soon, such a development cannot be considered imminent.

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Industrially Shanghai has been an anomaly, by Western standards, since it has reached its dominant position in China in the local absence of most of the essential materials of manufacturing. This is especially striking in the case of coal, the single most important industrial material. The city's development has nevertheless proceeded rapidly once industrialization began in China (Shanghai's population doubled between 1920 and 1936) because it remained the cheapest point of assembly within China proper for the resources on which Chinese industrial structure rested. Manufactured goods which the city produced could also be marketed more cheaply than from any other location. Assembly costs and distribution costs are after all the ultimate locational considerations, and the actual presence of raw materials is important only in those terms. But Shanghai's position is a reflection of the level of the Chinese economy as a whole. As China moves from a pre-industrial economy to an industrial economy, with the accompanying expansion in transportation facilities, Shanghai may lose some of its particular advantage. By 1936 and up to the present, such a development has by no means occurred, but there are signs that it may have begun.